What is claimed is:

1. An apparatus for mixing liquids comprising:

(a) a liquid sample within a liquid sample container;

(b) a magnetic impeller located in said liquid sample container; and

(c) an electromagnetic driver located in proximity to said magnetic impeller wherein said electromagnetic driver is powered by a signal generator.

2. The apparatus of Claim 1, wherein said magnetic impeller has a magnetic field coupled to an electromagnetic field of said electromagnetic driver.

3. The apparatus of Claim 2, wherein said signal generator produces a signal of programmed frequency and current.

4. The apparatus of Claim 3, wherein said signal of programmed frequency and current causes said electromagnetic field of said electromagnetic driver to vary with time.

5. The apparatus of Claim 4, wherein said electromagnetic driver imparts motion to said magnetic impeller in said liquid sample container as a result of a coupled electromagnetic field.

6. The apparatus of Claim 5, wherein said motion of said magnetic impeller transfers momentum through said liquid sample.

7. The apparatus of Claim 6, wherein said motion of said magnetic impeller is random.

8. The apparatus of Claim 6, wherein said magnetic impeller is mounted on an axle located within said liquid sample container.

9. The apparatus of Claim 8, wherein said motion of said magnetic impeller is rotational about said axle.

10. The apparatus of Claim 6, wherein said electromagnetic driver has no moving parts.

11. The apparatus of Claim 3, wherein said signal of programmed frequency and current is controlled by a computer implemented algorithm.

12. The apparatus of Claim 3, wherein said frequency and current of said programmed signal is controlled by an operator.

13. The apparatus of Claim 11, wherein said signal generator produces a wave form selected from the group consisting of sinusoidal waves, square waves, and sawtooth waves.

14. The apparatus of Claim 12, wherein said signal generator produces a wave form selected from the group consisting of sinusoidal waves, square waves, and sawtooth waves.

15. The apparatus of Claim 3, wherein said liquid sample container comprises an Eppendorf tube.

16. The apparatus of Claim 3, wherein said liquid sample container comprises a plurality of vessels arranged in a geometric array.

17. The apparatus of Claim 16, wherein said geometric array comprises 24 vessels.

18. The apparatus of Claim 16, wherein said geometric array comprises 96 vessels.

19. The liquid sample of Claim 16, wherein said geometric array is a circular array.

20. The apparatus of Claim 3, wherein said liquid sample container comprises a container suitable for low gravity applications.

21. A method for mixing liquids comprising the steps of:

a) providing a liquid sample in a liquid sample container;

b) providing a magnet impeller within said liquid sample;

c) providing an electromagnetic driver in proximity to said magnetic impeller;

d) providing a signal generator electrically connected to said electromagnetic driver; and

e) altering the signal generated by said signal generator, wherein said electromagnetic driver creates a rapidly rising and falling electromagnetic field that couples to a magnetic field of said magnetic impeller, wherein said rapidly rising and falling electromagnetic field causes said magnetic impeller to move.

22. The method of Claim 21, wherein said signal generator produces a signal of programmed frequency and current.

23. The method of Claim 22, wherein said signal of programmed frequency and current causes said electromagnetic field of said electromagnetic driver to vary with time.

24. The method of Claim 23, wherein said electromagnetic driver imparts motion to said magnetic impeller in said liquid sample as a result of a coupled electromagnetic field.

25. The method of Claim 24, wherein said motion of said magnetic impeller transfers momentum through said liquid sample.

26. The method of Claim 25, wherein said electromagnetic driver has no moving parts.

27. The method of Claim 21, wherein said signal of programmed frequency and current is controlled by a computer implemented algorithm.

28. The method of Claim 21, wherein said frequency and current of said programmed signal is controlled by an operator.

29. The method of Claim 27, wherein said signal generator produces a wave form selected from the group consisting of sinusoidal waves, square waves, and sawtooth waves.

30. The method of Claim 28, wherein said signal generator produces a wave form selected from the group consisting of sinusoidal waves, square waves, and sawtooth waves.

31. The method of Claim 21, wherein said liquid sample container comprises an Eppendorf tube.

32. The method of Claim 21, wherein said liquid sample container comprises a plurality of vessels arranged in a geometric array.

33. The method of Claim 32, wherein said geometric array comprises 24 vessels.

34. The method of Claim 33, wherein said geometric array comprises 96 vessels.

35. The method of Claim 34, wherein said geometric array is a circular array.

36. The method of Claim 35, wherein said liquid sample container comprises a container suitable for low gravity applications.

37. A system for mixing liquids comprising:

a) a liquid sample within a liquid sample container;

b) a magnetic impeller located within said liquid sample container;

c) a programmable electromagnetic driver located in proximity to said magnetic impeller and electrically coupled to a signal generator that receives electrical power from a power supply and commands from an electronic controller wherein said electronic controller produces a conditioned electronic signal established by an output of a computer.

38. The system of Claim 37, wherein said conditioned electronic signal is produced by means of one or more algorithms programmed into said computer.

39. The system of Claim 38, wherein said algorithm receives input in the form of viscosity and density of said liquid sample and diffusivity of a solute.

40. The system of Claim 38, wherein said algorithm receives input in the form of a liquid identifier of a liquid sample selected from a menu.

41. The system of Claim 38, wherein said algorithm receives input in the form of electromagnetic current, frequency, and duration of mixing.

42. A method for biphasic extraction comprising the steps of:

a) providing a liquid sample in a liquid sample container;

b) providing a magnet impeller within said liquid sample container;

c) providing an electromagnetic driver in proximity to said magnetic impeller;

d) providing a signal generator electrically connected to said electromagnetic driver; and

e) altering the signal generated by said signal generator, wherein said electromagnetic driver creates a rapidly rising and falling electromagnetic

field that couples to an electromagnetic field of said magnetic impeller, wherein said rapidly rising and falling electromagnetic field causes said magnetic impeller to move in random directions.

43. A method for mixing liquids in the absence of free liquid to gas interfaces or in the absence of inertial forces comprising the steps of:

a) providing a liquid sample in a liquid sample container;

b) providing a magnet impeller within said liquid sample container;

c) providing an electromagnetic driver in proximity to said magnetic impeller;

d) providing a signal generator electrically connected to said electromagnetic driver; and

e) altering the signal generated by said signal generator, wherein said electromagnetic driver creates a rapidly rising and falling electromagnetic field that couples to an electromagnetic field of said magnetic impeller, wherein said rapidly rising and falling electromagnetic field causes said magnetic impeller to move in random directions.

44. An apparatus for mixing liquids comprising:

a) a volume of liquid within a liquid sample, wherein said liquid sample is contained in a liquid sample container comprising a plurality of vessels arranged in a geometric array;

b) a permanent magnetic impeller located in said liquid sample container;

c) an electromagnetic driver having an electromagnetic field associated therewith, said electromagnetic driver located in proximity to said permanent magnetic impeller wherein said electromagnetic driver comprises no moving mechanical parts; and

d) a signal generator electrically coupled to said electromagnetic driver wherein said signal generator produces a signal of programmed frequency and current which causes said electromagnetic field of said electromagnetic driver to vary with time, thus imparting motion to said

permanent magnetic impeller in said liquid sample as a result of a coupled electromagnetic field between said permanent magnetic impeller and said electromagnetic driver, and wherein said frequency and current of said programmed signal is controlled by an operator.